

Claims

1. A protective skin for an aircraft comprising:

5 a leading edge member forming an airfoil surface having an exterior surface and an opposing interior surface;

at least one pocket recessed into the interior surface, each pocket having a thickness that is less than the thickness of the leading edge member, each pocket being configured to deform in response to an impact from an object with the leading edge member.

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2. The protective skin according to claim 1, wherein the leading edge member forms the leading edge of a wing member.

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3. The protective skin according to claim 1, wherein the leading edge member forms the leading edge of a horizontal stabilizer.

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4. The protective skin according to claim 1, wherein the leading edge member forms the leading edge of a vertical fin.

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5. The protective skin according to claim 1, wherein the pockets are formed by a chemical etching process.

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6. The protective skin according to claim 1, wherein the pockets are formed by a mechanical milling process.

7. The protective skin according to claim 1, wherein the leading edge member is curved about a longitudinal axis so as to form an upper airfoil surface and a lower airfoil surface.

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8. The protective skin according to claim 7, wherein the at least one pocket comprises:

a plurality of pockets arranged in a selected pattern over the interior surfaces of the upper airfoil surface and the lower airfoil surface.

9. The protective skin according to claim 8, wherein each pocket is formed in one of the following geometric shapes: circle, oval, rectangle, square.

5 10. The protective skin according to claim 8, wherein the pattern of pockets on the interior surface of the upper airfoil surface is a mirror image of the pattern of pockets on the interior surface of the lower airfoil surface.

10 11. The protective skin according to claim 8, wherein the pattern of pockets on the interior surface of the upper airfoil surface is not a mirror image of the pattern of pockets on the interior surface of the lower airfoil surface.

12. The protective skin according to claim 1, further comprising:  
at least one rib member connected to the interior surface of the leading edge member for attaching the leading edge member to a substructure of the aircraft.

15 13. The protective skin according to claim 1, further comprising:  
a stiffening means connected to the interior surface of the leading edge member for providing localized stiffness to the leading edge member.

20 14. The protective skin according to claim 13, wherein the stiffening means is an elongated I-shaped beam.

15. The protective skin according to claim 13, wherein the stiffening means is not connected to a substructure of the aircraft.

25 16. The protective skin according to claim 13, wherein the stiffening means is also connected to a substructure of the aircraft.